SUPERFUND PRELIMINARY CLOSE-OUT REPORT
Koppers Superfund Site Remedial Action
Morrisville, Wake County, North Carolina

I. INTRODUCTION

This Preliminary Close-Out Report (PCOR) documents, as a supplement to the Remedial Action Report, that the United States Environmental Protection Agency (EPA), the State of North Carolina, and Beazer East, Inc. (the Responsible Party (RP)) have completed all construction activities for the Koppers Superfund Site (the "Site") Remedial Action in accordance with the December 23, 1992, Record of Decision (ROD) issued by Region IV of the EPA, and with *Procedures for Completion and Deletion of National Priorities List Sites and Update* (OSWER Directive 9320.2-3C). A Final Inspection of this remedial action (RA) was conducted on December 18, 1996. EPA determined that the RP's contractor, The Cummings Riter Consultants, Inc., has constructed the remedy in accordance with the approved remedial design (RD) plans and specifications. The Cummings Riter submitted a Final Construction Report and the Remedial Action Report on February 27, 1997. The RA Report properly documented successful completion of RA construction activities and was approved by EPA on September 8, 1997.

This PCOR must be supplemented at some future date by a *Final* close-out report. The remedial activities are expected to continue for an undetermined number of years.

II. SUMMARY OF SITE CONDITIONS

Background

The Koppers Site is located in the community known as Shiloh, several miles north of the town of Morrisville, at the intersection of Highway 54 and Koppers Road. The Site consists of approximately 52 acres, though ownership of the property is divided. In 1959, the Site was sold by Cary Lumber Company to Unit Structures Inc. and again sold in 1962 to the Koppers Company. In September 1986, the majority of the Site was sold to Unit Structures (a company unrelated to the previous owners); Unit Structures currently operates a wood lamination facility at the Site. Koppers Company retained approximately 10 acres of the Site and has recently acquired additional portions of the property. In June 1988, the Koppers Company was acquired by Beazer, Inc. Therefore, both Beazer and Unit Structures now own portions of the Site.

The CELLON process was used at the Site from 1968 until 1975. The southeastern section of the Site was the location of the CELLON processing area and the former lagoon area. The CELLON treatment consisted of injection of pentachlorophenol (PCP) into the wood. PCP is a main contaminant at the Site. Isopropyl ether (IPE) was used as a cosolvent in the process to increase the solubility of PCP in a butane carrier.

After treatment, residual PCP was removed by a steam process. The rinsate was processed by a coagulant to remove excess PCP which was filtered off. The final rinsate, presumed to be predominately water, was pumped into two on-Site lagoons. It is believed that these lagoons were not lined.

In 1976, Koppers voluntarily began to conduct environmental studies at the site focusing on the CELLON process area and the lagoon area. According to the history of the Site provided by Beazer and based on those studies, it was recommended that the two lagoons be reclaimed by land treatment. In 1977, the liquid contents of the lagoons were pumped out and landfarmed, or sprayed, in the northernmost portion of the Site. Fertilizer was spread over the area and the area was plowed again. The lagoon bottom sludges were mixed with surrounding soils and spread to dry over the former lagoon areas. The lagoon areas were also fertilized and seeded.

In January 1980, Koppers conducted more studies on the Site. Investigations of groundwater and soils were conducted. Results of these investigations prompted the following soil removal actions by Beazer. During the spring of 1980, approximately 220 cubic yards of contaminated soil were removed from the lagoon area. Later that same year, 240 more cubic yards of contaminated soil were removed from the area. In 1986, another soil removal was conducted. Approximately 1100 cubic yards were taken from the lagoon area, 50 cubic yards from the filter bed area and 100 cubic yards from the blowdown pit area. According to Beazer, final disposal of these soils was to permitted facilities.

In 1980, the Environmental Services Division (ESD) of the Environmental Protection Agency (EPA), conducted a site inspection of the Fire Pond, the Medlin Pond and select private wells. No further action was considered necessary at that time. In 1986, Beazer began sampling off-Site private residential wells.

The North Carolina Division of Health Services, Superfund Branch also investigated the groundwater in the area to determine if any of the contamination at the Site had migrated into private wells in the immediate vicinity of the Site. Eventually, a cooperative effort between the State of North Carolina and Beazer began, with monitoring of private wells in the vicinity. This sampling was conducted on a quarterly basis beginning in February 1989. Based on the results of the private well sampling, Beazer provided bottled water to all residents whose wells showed any detectable amounts of IPE or PCP. The last round of sampling which occurred the week of July 7, 1993, did not detect any of the chemicals of concern in the residents' well water. Therefore, the residents' bottled water supply was discontinued in November 1993.

In June 1988, at the State's recommendation, the Site was proposed for inclusion on EPA's National Priorities List (NPL), and became final in March of 1989. On March 14, 1989, EPA issued an Administrative Order on Consent, which allowed Beazer to conduct the Remedial Investigation and Feasibility Study at the Site.

In May of 1989, EPA and Beazer entered into an agreement to install public water supply lines to all residents whose wells were impacted. Under this removal action, approximately four miles of water lines were installed and eighty residences were

connected to the municipal water supply. The specific terms of the water line construction were developed between Beazer and the Town of Morrisville. Beazer tied into a pre-existing line installed along Koppers Road.

The Remedial Investigation (RI), completed in December of 1991, confirmed the presence of Site contaminants in groundwater, surface water, surface soils, subsurface soils and sediments. The groundwater under the lagoon, process areas and off-Site was found to be contaminated with PCP, polychlorinated dibenzo-p-dioxins (PCDDs), polychlorinated dibenzo-furans (PCDFs), and IPE. Several additional phenolic compounds have been identified; 2,4-dichlorophenol, 2,4,6-trichlorophenol, 2,3,5,6-tetrachlorophenol.

The RI also included an analysis of the potential dangers to human health and the environment. Based on the results from the RI, EPA determined that remediation of the soil, surface waters and groundwater was necessary to protect human health and the environment.

A Feasibility Study (FS) was conducted to analyze the remedial alternatives. Each alternative was evaluated using the following factors: effectiveness of soil and groundwater remediation, cost- effectiveness, technical feasibility, institutional requirements, and the degree of protectiveness to human health and the environment.

On July 23, 1992, EPA held a public meeting at the Morrisville Elementary School in Morrisville, North Carolina. At this meeting, EPA discussed the remedial alternatives developed in the FS and reviewed the preferred alternative. The ROD was signed and issued on December 23, 1992.

Selected Remedies

In summary, the Koppers Site remedy addressed the contaminated soil, surface water, and groundwater present at the Site. The remedial actions required by the ROD are briefly set forth below.

A primary remedy was selected for soils which will permanently remove and destroy contamination in the soil through treatment. This alternative involves off-Site incineration of the soils at a permanent permitted facility, to include:

- Excavation of contaminated soils from the lagoon, and process area on-Site to meet cleanup standards
- Transportation of soils to an off-Site permitted incineration facility
- Backfilling of excavation area with clean fill and

- Final regrading and revegetation of the excavated areas.

The remedy for groundwater will remove Site-related contaminants in the groundwater through groundwater extraction and on-Site treatment by carbon adsorption. The following activities are involved in this remedy:

- Contaminated groundwater will be extracted from within the plume via extraction well(s) and piped to an on-Site, above-ground treatment unit
- Treatment will consist of carbon adsorption through a primary carbon adsorption unit and a secondary carbon polishing unit
- Final discharge of the effluent will be to the surface water, stipulated by the substantive requirements of the National Pollutant Discharge Elimination System and
- Further delineation of the horizontal and vertical extent of groundwater contamination will be conducted.

The remedy for surface water will remove Site-related contaminants in the surface water by the dewatering of the ponds, backfilling with clean fill, and regrading the areas for proper drainage flow. Activities of the surface water component of the remedy consist of:

- The on-Site Fire Pond and the Medlin Pond will be dewatered
- The ponds will be backfilled with clean fill
- The surface water will be treated by carbon adsorption
- Final discharge of the effluent will be to the surface water, stipulated by the substantive requirements of the National Pollutant Discharge Elimination System
- Final regrading and drainage control of the pond areas will be conducted and
- Wetlands will be destroyed under this portion of the remedy. Therefore, wetlands mitigation will be required under this remedy.

Remedial Construction Activities

In the Unilateral Administrative Order (UAO), issued April 21, 1993, the RPs were required to perform the remedial design/remedial action (RD/RA). The RD was conducted in conformance with the ROD.

The completion date for soil excavation and off-site incineration activities was June 1996. Soil excavation and performance standards verification were executed in accordance with the Remedial Action Work Plan (Cummings/Riter, January 12, 1996). All post-excavation laboratory analytical work has been validated for quality assurance.

Surface water treatment required the draining and treatment of the surface water in both the Fire and Medlin Ponds. The two ponds were drained and backfilled with clean soil by Waste Abatement Technology. Since both ponds were drained, wetland areas were destroyed. Therefore, the Seagondollar Property was constructed as a replacement for the two ponds. The former Medlin Pond after grading was planted with transitional wetland vegetation. Analytical results indicated concentrations of site constituents in all sediment samples met the soil performance standards (Chester Environmental, PreDesign Sampling Interim Data Report, January 1994). The RD and RA deliverables were approved by EPA in March and August 1995.

The construction operations plan for groundwater remediation was submitted to EPA in March 1996. The initial operation of the groundwater remediation system commenced May 1996. All performance verification data collected to date indicate that remedy components have been constructed in accordance with the specifications developed in the RD and RA phases.

Soil Cleanup Standards

pentachlorophenol	95 ppm
dioxins	7 ppb

Dioxin is the commonly used term for polychlorinated dibenzo-p-dioxins and dibenzofurans. The most toxic isomers are the 2,3,7,8 configuration of the tetrachlorodibenzo-p-dioxins, and tetrachlorodibenzofurans.

Groundwater Cleanup Standards

dioxin/furans	.00003 ppb
pentachlorophenol	1 ppb
2,4-dichlorophenol	20 ppb

Both the PCP and the dioxin standards are equal to the federal MCL and to the Practical Quantitation Limit (PQL).

III. DEMONSTRATION OF QUALITY ASSURANCE / QUALITY CONTROL (QA/QC) FROM CLEANUP ACTIVITIES

Activities at the site were consistent with the ROD, and all work plans were issued to contractors for design and construction of the RA, including sampling and analysis. All groundwater sample collection activities at the site have been conducted in accordance with EPA protocols and the EPA-approved Performance Standards Verification Plan. The RD Report, including Quality Assurance Project Plan, incorporated all EPA and State quality assurance and quality control (QA/QC) procedures and protocol.

IV. ACTIVITIES AND SCHEDULE FOR SITE COMPLETION

Upon review of the Groundwater Operation and Maintenance Plan submitted in February 1997, as well as the final inspection conducted in December 1996, EPA and NCDHNR determined that the groundwater system which constitutes the remedy is fully operational and functional (O&F). The remedial system began operation in March 1997. A Remedial Action Report was submitted to EPA in February 1997. EPA approved the Remedial Action Report on June 18, 1997, and stated in writing that construction was complete.

Due to the expected long timeframe for completion of the groundwater remediation effort, the preparation date of a Final Close-Out Report can only be estimated at this time. The estimate below assumes that a 10-year period of groundwater system operation will be required in order for performance standards to be met.

Therefore, the remaining RA activities consist primarily of successful operation and maintenance of the groundwater system, according to the following general schedule:

Task	Estimated Completion	Responsible Organization(s)
Final RA Report	June 2007[1]	RP[2]
Final Close Out Report	August 2007[1]	EPA

1. These dates are estimates. Groundwater estimated as 10 years.
   Actual dates will depend on attainment of the Site-specific remedial goals.
2. EPA is the approval authority for these reports.

V. FIVE YEAR REVIEW

Upon completion of this remedy, no hazardous substances will remain on-site above levels that prevent unlimited use and unrestricted exposure. However, because the remedy will require greater than five years to achieve these levels, pursuant to CERCLA section 121(c) and as provided in OSWER Directive 9355.7-02, *Structure and Components of Five-Year Reviews*, May 23, 1991, EPA must conduct a policy five-year review. Therefore, the Five-Year Review will be completed prior to December 2001.

for Richard Green, Acting Director
Waste Management Division

9/11/97
Date